

SC-332B PAPER TAPE TO MAGNETIC TAPE CONVERTER

*Approved
1/31/60*

1.0 INTRODUCTION

The SC-332B is a unidirectional tape converter which converts perforated tape data to magnetic tape data. The converter is used to prepare perforated tape data for high-speed entry into a digital computer through the computer's magnetic tape input. This frees the computer from the costly and time consuming job of reading perforated tape.

The SC-332B converter uses a new concept in magnetic tape recording - a step drive recorder. This device makes it possible to write data on magnetic tape at the data rate of the paper tape reader, thus eliminating the need for a core buffer memory. The converter reads a character on paper tape, converts it to a magnetic tape character, records it and then advances the magnetic tape one step. This is continued on a character-by-character basis until a command is given in the converter to end the record and write a record gap.

The SC-332B is programmed by a removable plugboard which can be preprogrammed for each different job to be processed.

2.0 DESCRIPTION

2.1 Operational Characteristics - The SC-332B will convert perforated tape characters in accordance with the following:

2.1.1 The input to the converter will be standard 5, 6, 7, or 8 level perforated tape. The tape reader will accept tape whose dimensions are in accordance with the EIA Standard RD-227.

2.1.2 The output of the converter will be seven level, half inch, IBM-compatible magnetic tape. The bit packing density will be 200 characters per inch.

2.1.3 A code converter will be supplied for converting the perforated tape characters to magnetic tape characters. The code converter will convert six level codes, excluding parity, and will be programmable by means of a removable plugboard. A special hub on the plugboard will be provided for detecting and converting the eighth level on the input tape when eight level tape is used.

2.1.4 A number of special functions will be included with the converter which will be programmable with the plugboard. These functions are:

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| (a) PT Parity
(ODD/EVEN) | Checks for odd or even parity on input perforated tape. |
| (b) Leader Check | Inhibits the perforated tape parity check when only sprocket holes are punched. |
| (c) EOR
(End of Record) | A character detected as an End of Record character will halt the reader and cause the magnetic tape record to be filled with pad characters. An error character will be inserted as the last character of that record. |
| (d) EOJ
(End of Job) | A character detected as an End of Job character will halt the reader and cause the magnetic tape record to be filled with pad characters; also the end of conversion lamp will light indicating the completion of the conversion. Any character detectable by the code converter, or the end of line character on paper tape (channel eight), can be selected as an EOR or EOJ character. |

- (e) Error Character Any character can be programmed as an error character to be inserted as the last character of an incomplete record.
- (f) Delete Four hubs will be available on the plugboard for ignoring perforated tape characters.
- (g) Illegal Character Four hubs will be available on the plugboard for detecting unwanted characters on the input perforated tape. Detection of an illegal character will cause the conversion process to halt and will cause an indicator to light.
- (h) Magnetic Tape
 Parity
 (ODD/EVEN) Provisions will be made on the plugboard for generating either odd or even magnetic tape parity.
- (i) Letters/Figures Special hubs will be provided on the plugboard for converting five level codes with letters/figures characters to six level codes.
- (j) OR Six four-input OR functions will be provided on the plugboard for detecting groups of characters to perform given functions.
- (k) Record Length The number of characters in the output record will be determined by a programmable counter. Up to 256 characters can be written in a magnetic tape record. (As an option, a larger counter can be supplied).

2.1.5 A number of controls and indicators will be included to facilitate easy operation of the converter.

2.1.5.1 Controls:

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| (a) POWER ON/OFF | Turns the power ON and OFF. |
| (b) RESET | Resets the logic prior to start of conversion. |
| (c) START | Initiates the conversion process. |
| (d) STOP ON
CHARACTER | Halts the conversion before the next character. |
| (e) STOP ON
RECORD | Halts the conversion at the end of a record. |
| (f) FILE GAP | Manually writes a file gap and a file mark on the magnetic tape. |
| (g) LOAD | Disables the magnetic tape servo motors for loading and unloading magnetic tape. |
| (h) READY | Enables the magnetic tape unit and automatically advances the tape to the load point reflective marker. |
| (i) REWIND | Rewinds the magnetic tape. |

2.1.5.2 Indicators:

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| (a) END OF TAPE | Indicates that the physical end of the paper tape has been reached. If a record has not finished before sensing the end of tape, the record will be padded and an error character will be inserted as the last character of that record. |
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(b) END OF JOB

When a character is detected as an End of Conversion character, the END OF JOB lamp will light, and the conversion process will halt.

(c) PAPER TAPE
CHECK

When an illegal character on the input paper tape is detected or an input parity error is detected, the conversion will halt and the Paper Tape Check indicator will light. The conversion can then be restarted by pressing the START switch.

(d) I/O READY

The I/O READY lamp indicates that the magnetic tape and the paper tape are in a ready condition and the conversion process can be started.

2.2 Equipment Description - The converter will be constructed as a table top unit, consisting of two packages - the incremental transport and the converter logic will be in one package, and the perforated tape reader and the start/stop controls will be in another package. The emphasis on the mechanical layout of the equipment is to enable easy handling of the perforated tape and accessibility to the controls.

2.2.1 The perforated tape reader will be a 100-characters-per-second photoelectric reader. The reader will accept standard 5, 6, 7, and 8 level perforated tape which is in accordance with EIA Standard RS-227.

The spooling equipment supplied with the perforated tape reader will be a center feed supply bin and an eight inch take-up reel.

2.2.2 The magnetic tape transport will be a SC-303 incremental magnetic tape recorder. The recorder will write one half inch, seven level, IBM-compatible tape at two hundred (200) characters per inch density. The recorder will write characters at the speed of the incoming data - 100 characters per second.

2.2.3 A 20 x 22 hole phenolic plugboard which is removable from a 20 x 22 pin receptacle will be supplied with the SC-332. The plugboard is programmable and interchangeable with other plugboards of the same size.